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**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Dao Min Zhou, et al.	) Group Art No.: 3762
	)
U.S. Patent Application No: 10/655,772	) Examiner: Kahelin, M William
	)
Filed: September 5, 2003	) Re: <b>Response</b>
	)
For: "Adherent Metal Oxide..."	) Our Ref: S232-USA
	)
	) Date: February 15, 2007

**RESPONSE**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This paper is filed in response to the non-final Office Action mailed on September 22, 2006, a reply to which is due no later than March 22, 2007. The Commissioner is authorized to charge a 2-month extension fee to deposit account no. 50-0922. Please consider the following amendments and remarks with respect to the subject application. All amendments and remarks are made without prejudice.

**Amendments to the claims** begin on page 2 of this paper.

**Remarks** begin on page 5 of this paper.

\* \* \*

**AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions and listings of claims in the application.

**LISTING OF CLAIMS**

1.-20. (withdrawn)

21. (currently Amended) An implantable electrode comprising:

an electrode body having a substrate surface; and

a surface coating ~~comprised of a sputtered coating~~ on said substrate surface, and

said surface coating comprised of a gradient composition, said gradient composition further comprised of platinum and iridium oxide.

22. (original) The implantable electrode of claim 21, wherein said substrate surface is comprised of platinum gray.

23. (withdrawn)

24. (original) The implantable electrode of claim 21, wherein said substrate surface is a rough surface.

25. (original) The implantable electrode of claim 24, wherein said rough surface is a sandblasted surface.

26. (original) The implantable electrode of claim 24, wherein said rough surface is an abraded surface.

27. (withdrawn)

28. (original) The implantable electrode of claim 21, wherein said gradient composition is comprised of electroplated material.

**29. (new)** The implantable electrode of claim 21, wherein said gradient composition is an approximately linear gradient from essentially pure platinum to essentially pure iridium oxide.

**30. (new)** The implantable electrode of claim 21, wherein said gradient composition is comprised of a fraction of platinum and a complementary fraction of iridium oxide.

**31. (new)** The implantable electrode of claims 21, wherein said gradient composition varies stepwise in composition.

**32. (new)** The implantable electrode of claim 21, wherein the platinum in the gradient composition is platinum gray.

**33. (new)** The implantable electrode of claim 21, wherein the substrate surface is made of a biocompatible material with platinum or titanium conductive traces.

**34. (new)** An implantable electrode comprising:

a substrate; and

a surface coating, said surface coating comprising platinum and iridium oxide;

wherein amount of platinum with respect to iridium oxide varies along a distance from the substrate.

**35. (new)** The implantable electrode of claim 34, wherein the amount of platinum with respect to iridium oxide varies linearly along the distance from the substrate.

**36. (new)** The implantable electrode of claim 34, wherein the amount of platinum with respect to iridium oxide varies along the distance from the substrate from essentially platinum next to the substrate to essentially iridium oxide.

37. (new) The implantable electrode of claim 34, wherein the substrate is made of a material selected from the group consisting of metal, polymer and ceramic.

38. (new) The implantable electrode of claim 37, wherein the metal is platinum gray.

39. (new) An electrode array comprising a plurality of electrodes in accordance with claim 34.

40. (new) An electrode comprising an electrode base and an electrode top surface, wherein:

the electrode top surface is essentially made of iridium oxide;

the electrode base is essentially made of platinum;

sections of the electrode between the electrode base and the electrode top surface comprise platinum and iridium oxide; and

amount of iridium oxide and platinum in the electrode between the electrode base and the electrode top surface varies between essentially platinum and essentially iridium oxide.

\* \* \* \* \*

### REMARKS

1. (claim amendments) Claims 21, 22, 24-26, and 28 are pending in the application. With the present response, claim 21 has been amended and claims 29-40 have been added. The present application contains a total of 18 claims, 3 of which are independent. Therefore, no claims fee are submitted to be due. With reference to new claims 29-33 reference can be made, for example, to page 16, lines 19-27 and page 17, lines 11-27 of the specification. As to claims 34-40 see, in particular, page 16 lines 19-27 and page 17 lines 5-21 of the specification. See also Figures 7-9 and related portions of the specification.

2. (35 USC § 112 rejections) In sections 3 to 5 of the Action mailed on September 22, 2006, the Examiner rejects claims 21, 22, 24-26, and 28 under 35 USC § 112, second paragraph. The Applicants have amended claim 21 to introduce appropriate modifications and submit that amended claims 21, 22, 24-26, and 28 meet the requirement of 35 USC 112, second paragraph. In addition, the Applicants point out the following.

In reply to the Examiner's remarks in section 5, the Applicants have amended claim 21 to recite "said gradient composition further comprised of platinum and iridium oxide." Support for this amendment can be found, for example, at page 16 lines 19-27 and page 17 lines 11-21. In reply to the Examiner's remarks in section 6, the Applicants point that in the original claim 21 the wording "*sputtered*" is referred to the "*surface coating*" and not to the "*gradient composition*". However, the Applicants have cancelled the wording "*comprised of a sputtered coating*" from claim 21, thus rendering the Examiner's rejection moot.

The Applicants submit that amendments to the claims responsive to the rejections under 35 USC § 112, second paragraph, have been introduced for clarity purposes only and that no limitations have been introduced into the claims in order to respond to the rejections under 35 USC § 112, second paragraph.

3. (35 USC § 102) In sections 7-11 of the Action, the Examiner rejects original claims 21, 24 and 28 under 35 USC § 102(b) as being anticipated by US 4,679,572 to Baker. The Applicants respectfully disagree for the reasons that follow.

a) **Claim 21**

Amended claim 21 recites: “...[a] surface coating comprised of a gradient composition. Amended claim 21 further recites: “ *said gradient composition further comprised of platinum and iridium oxide.*”

In section 9 of the Action, the Examiner makes reference to Baker col. 7, lines 6-61, and argues that Baker discloses “a ... surface coating comprised of a gradient composition of platinum and iridium oxide...” The Applicants have reviewed the passage pointed out by the Examiner and have not been able to find in Baker any mention of a “gradient composition”, let alone of a “surface coating comprised of a gradient composition” and/or a “gradient composition of platinum and iridium oxide.” Moreover, Applicants were also not able to find any mention of platinum and iridium oxide in a surface coating. On the contrary, Applicants note that in the passage mentioned by the Examiner Baker’s surface coating 20 (see also Fig. 1 in Baker) is exclusively composed of iridium oxide (see Baker col. 7, lines 25 and 48-49).

Accordingly, the Applicants submit that claim 21 is novel over Baker at least because Baker does not describe “...[a] surface coating comprised of a gradient composition,” and “...[a] surface coating comprised of a gradient composition, said gradient composition further comprised of platinum and iridium oxide.” Should the Examiner disagree with the Applicants, the Examiner is respectfully invited to show to Applicants where in Baker the above recited features are shown.

**b) Claims 24 and 28**

Each of claims 24 and 28 depends on claim 21. Accordingly, Applicants submit that claims 24 and 28 are novel over Baker at least in view of that dependence. Moreover, in reply to the Examiner's remarks in sections 10 and 11 of the Action, Applicants submit the following observations.

i) Claim 24 recites: " ... *said substrate surface is a rough surface.*"

The Examiner rejects claim 24 making reference to Baker, col. 7 line 41 (see section 11 of the Action). The Applicants were not able to find in the cited passage any mention of a rough substrate surface. In particular, line 41 recites "The substrate 15 may be formed using a conventional ...." Therefore, should the Examiner be willing to maintain such rejection, further clarification is respectfully requested.

ii) Claim 28 recites: a "...gradient composition ... *comprised of electroplated material.*" The Examiner rejects claim 28 by making reference to Baker col. 3, line 37 (see section 10 of the Action). The Applicants were not able to find in the cited passage any mention of a "*gradient composition comprised of an electroplated material*". Also in this case, should the Examiner be willing to maintain such rejection, further clarification is respectfully requested.

4. (35 USC § 103) In sections 12 and 14 of the Action, the Examiner rejects original claims 22, 25 and 26 under 35 USC § 103(a) as unpatentable over Baker in view of Bolz (US 5,571,158) (claim 22) and as unpatentable over Baker in view of Munshi (US 5,654,030) (claims 25 and 26). The Applicants respectfully disagree.

Each of claims, 22, 25 and 26 depends on claim 21 and therefore includes all of the features of claim 21. The Applicants have already shown above that Baker does not disclose all the features of claim 21, and that claim 21 is novel over Baker. The Examiner fails to indicate where in Bolz or Munshi those features are disclosed. Therefore, the Applicants submit that the Examiner has failed to establish a prima facie case of obviousness for claims 22, 25 and 26 at least because the prior art references cited by the

Examiner against claims 22, 25 and 26 do not teach or suggest all the claims' limitations (see MPEP 2142 and in particular MPEP 2143.03 and decisions cited therein.)

As consequence the Applicants respectfully request that the Examiner withdraw the Examiner's rejections of claims 22, 25 and 26.

5. (new claims 29-33) New claims 29-33 are dependent on claim 1 and therefore patentable over the cited art at least by virtue of their dependency on claim 1.

6. (new claims 34-40) New claims 34-40 comprise independent claim 34 and independent claim 40. Claim 34 recites an electrode comprising a substrate together with a *"surface coating comprising platinum and iridium oxide"* and wherein *"amount of platinum with respect to iridium oxide varies along a distance from the substrate."* Applicants submit that claim 34 is patentable over the cited art at least in view of these features, together with claims 35-39 at least by virtue of their dependency on claim 34. Claim 40 recites an electrode with an electrode base and an electrode top surface, wherein *"sections of the electrode between the electrode base and the electrode top surface comprise platinum and iridium oxide"* and wherein *"amount of iridium oxide and platinum between the electrode base and the electrode top surface varies between essentially platinum and essentially iridium oxide."* Applicants submit that claim 40 is patentable over the cited art at least in view of these features.

Allowance of all the claims is respectfully solicited.

\* \* \* \* \*

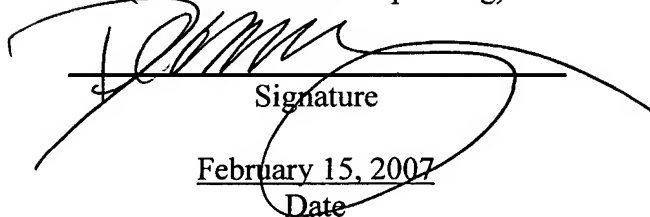


The Commissioner is authorized to charge a two-month extension fee and any additional fees, which may be required or credit overpayment to deposit account no. 50-0922. In particular, if this response is not timely filed, then the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136 (a) requesting an extension of time of the number of months necessary to make this response timely filed and the petition fee due in connection therewith may be charged to deposit account no. 50-0922.

I hereby certify that this correspondence is being deposited with the United States Post Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on

February 15, 2007  
(Date of Deposit)

Deanna L. Fintz  
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Signature  
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Respectfully submitted,



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